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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,226	10/11/2001	Mikael O. Weigelt	PROS1110-1	7789

44654 7590 03/16/2006

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EXAMINER	
KRISCIUNAS, LINDA MARY	

ART UNIT	PAPER NUMBER
3623	

DATE MAILED: 03/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/975,226	WEIGELT ET AL.	
	Examiner	Art Unit	
	Linda Krisciunas	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12 and 22-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 22-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The following is a Final Office Action in response to the Applicant's amendments filed February 6, 2006. Claims 1-12 and 22-34 are pending. Claims 13-21 were cancelled. Claims 1-12, 22-24, and 27 were amended. Claims 28-34 are new.

Response to Amendments

2. The Examiner has fully considered the amendments with respect to the 112, second paragraph rejection. Claim 21 was cancelled, so the rejection is withdrawn. Claim 27 has been amended sufficiently and the rejection is withdrawn.

The Examiner has fully considered the amendments with respect to the 101 rejection and they are deemed not persuasive. Pending claims 1 and 22 still do not provide a true data structure with logical relationships among data elements designed to support specific data manipulation functions. There are no steps specified which produce a real world result which renders the claimed invention non-statutory for failure to recite a final result that is concrete and tangible. Specifically, claim 1 recites four different types of data which is non-functional descriptive material and is directed towards non-statutory subject matter. The revenue management software program is merely accessible by the revenue management data model, it lacks practical application that fails to produce useful, concrete and tangible results. Therefore, these claims are directed toward non-statutory subject matter.

Response to Arguments

3. The Examiner has fully considered the arguments set forth with respect to Talluri and they were deemed not persuasive. The first data structure is defined in the

Specification in paragraph 26. The demand can be demand for a flight. Talluri teaches demand (column 4, lines 14-24, where there is a request for a resource and the resource is a flight or flight leg.) The second data structure is defined in the Specification in paragraph 25. The resource can be a discrete item that a company offers to satisfy a demand. Talluri teaches resource (column 5, lines 45-46: "limited capacity resource, such as seats on an airline flight"). The third data structure is defined in the Specification in paragraph 27. The resource bundle can be a "set of resources that are combined to form a product or service. In some cases, a resource bundle can be associated with a single resource (a seat on a direct flight can be both a resource and a resource bundle)." Talluri teaches resource bundle (column 5, lines 59-67, where the itinerary consists of multiple airline flight legs.). The fourth data structure is defined in the Specification in paragraph 28. The resource bundle to demand link can "associate the resource bundles with the demands that each resource bundle satisfies." Talluri teaches resource bundle to demand link (column 5, lines 53-58, where the reservation booking system would match the demands with the resources). The amended claim limitations have been addressed in the rejection below.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-12 and 22-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-12 and 22-27 are directed toward a revenue management model which contains four "data structures". These four structures are a means for storing various data and not a true data structure. A true data structure is a logical relationship among data elements designed to support specific data manipulation functions. Additionally, there are no steps specified which produce a real world result which renders the claimed invention non-statutory for failure to recite a final result that is concrete and tangible. Specifically, claim 1, recites four different types of data which is non-functional descriptive material and a revenue management software program which is merely accessible by the revenue management data model. Claims 1 and 22 additionally lack practical application that fails to produce useful, concrete and tangible results. Thus, these claims are directed toward non-statutory subject matter.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-12, and 22-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Talluri (US 6,263,315).

As per claim 1, 12, 22 and 28, Talluri teaches a first data structure containing a representation of a network demand (column 4, lines 14-24, where there is a request for a resource and the resource is a flight or flight leg); a second containing a network resource (column 5, lines 45-46: "limited capacity resource, such as seats on an airline flight"); a third containing a resource bundle wherein the resource bundle represents a group of resources combined to form a product or service (column 5, lines 59-67, where the itinerary consists of multiple airline flight legs); and a fourth containing a resource bundle to demand link (column 5, lines 53-58, where the reservation booking system would match the demands with the resources) wherein the revenue management software program is operable to perform at least one network optimization based on information stored in the first data structure, the second data structure, the third data structure and the fourth data structure (column 5, lines 10-15, where the optimization modules of Talluri provide a means for optimizing the price and demand of the airline ticketing system which would in turn optimize revenue and therefore be equivalent as it performs an identical function in substantially the same manner with substantially the same results.).

With respect to the limitation of claim 28 for mapping the data to the database, the Specification does not expand upon the definition of this function and the Examiner is interpreting it to be a means of sending the data to the database for storage. Talluri

teaches sending data to a database for storage (column 5, lines 57-58: "a database 18 is provided for maintaining historical records of all processed reservations").

As per claim 2, Talluri teaches the resource bundle to demand link associates the resource bundle to network demand (column 5, lines 53-58, where the reservation booking system would match the demands with the resources).

As per claim 3 and 24, Talluri teaches a representation of the maximum capacity of the network resource (The specification defines network resource as a representation of all flight legs that an airline offers in paragraph 30. Talluri teaches a reservation booking system, see Figure 4. A reservation booking system would contain a list of all flights offered.), physical capacity of the network resource (See Figure 4: maximum number of seats. See also Figure 4 (206) maximum authorized capacity for itinerary) and expected use capacity of the network resources (column 5, lines 53-58, where expected use of the resources would equivalent to the reservation yield and the database maintaining historical records of all the reservations as it performs an identical function in substantially the same manner with substantially the same results.).

As per claim 4 and 25, Talluri teaches a representation of optimal quantity (column 6, line 34, where units is equivalent to quantity) and optimal price (column 6, line 3).

As per claim 5, Talluri teaches the network is an airline network (column 6, line 1: where a reservation system contains an airline network of flights).

As per claim 6 and 23, Talluri teaches an itinerary demand (column 5, line 61) and a fare class demand (column 7, line 57).

As per claim 7, Talluri teaches the network resource includes a seat on a flight leg (column 5, line 65).

As per claim 8, Talluri teaches the resource bundle includes an origin to destination itinerary (claim 5: "trip to selected destination").

As per claim 9, Talluri teaches the resource bundle to demand link associates the origin to destination itinerary with the network demand (column 5, lines 46-56, where the reservation system (16) is making origin to destination itineraries).

As per claim 10 and 26, Talluri teaches the fifth data structure represents a resource demand (column 4, lines 13-14: "request for a resource" is equivalent to demand).

As per claim 11, Talluri teaches the resource demand represents a total demand on the resource (column 6, lines 1-8, where the sum of the threshold values represents the sum of the resources, per column 5, lines 51-53).

As per claim 27, Talluri teaches generating the resource demand with a network optimization (column 4, lines 46-49, where the threshold values represent resources, per column 5, lines 51-53).

As per claim 29, Talluri teaches the generic revenue management data model allows data for multifarious revenue management problems in the network to be expressed in a uniform format (column 3, lines 58-67 and column 4, lines1-2 and column 4, lines 61-67, where the system is flexible to handle multiple resources and dynamic adjustment to the control logic while keeping the number of controls used to an acceptable limit. Another advantage is that it can quickly compute maximum allocations

for each demand type. The system also optimizes the results to provide additional robustness to the revenue management system, whereby the optimization process would be equivalent to the "uniform format" limitation as it performs an identical function in substantially the same manner with substantially the same results.).

As per claim 30, Talluri teaches applying one or more revenue management programs to the revenue management problem data stored in the generic revenue management data model to derive an optimal network-wide solution for the network (column 5, lines 4-16 where the system is capable of mimicking the decisions of nested allocation and traditional bid price controls which are equivalent to one or more revenue management programs as it performs an identical function in substantially the same manner with substantially the same results.).

As per claim 31, Talluri teaches splitting problem information into the revenue management problem data and optimization sequence data (column 5, lines 11-16); and based on the optimization sequence data, applying one or more revenue management programs to the revenue management problem data stored in the generic revenue management data model to derive an optimal network-wide solution for the network (column 5, lines 4-16 where the system is capable of mimicking the decisions of nested allocation and traditional bid price controls which are equivalent to one or more revenue management programs as it performs an identical function in substantially the same manner with substantially the same results).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Talluri in view of Baiada et al (US 6,721,714).

As per claim 32, Talluri does not explicitly teach the affect on resources. Baiada teaches that it is known to decompose the network to determine how the optimal network-wide solution affects individual local resources (See Figure 8 which contains a flow chart of how the airline management system functions and how the various resources are affected and how they effect the optimization of the system). Baiada is an analogous art as it also teaches about management and optimization of an airline. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the management system of Talluri with the impact on resources feature of Baiada to provide a more comprehensive and efficient system since it alerts the user to the impact decisions will have on resources as well as revenue and allows the user visibility to pick the best decision considering all the criteria.

As per claim 33, Talluri does not explicitly teach representing demand on individual resources. Baiada teaches that it is known that a generic revenue management data model further comprises a fifth data structure for storing a representation of demands placed on the individual local resources (column 4, lines 28-41, where Baiada teaches to take into consideration a wide array of parameters and

factors including resources such as ground services, gate availability, cargo etc. See Figure 8 which depicts a flow chart of how the various resources are integrated in the system.). Baiada is an analogous art as it also teaches about management and optimization of an airline. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the management system of Talluri with the demand on individual resources feature of Baiada to provide a more comprehensive and user-friendly system since it alerts the user to the impact on resources and allows the user visibility to individual resource demands.

As per claim 34, Talluri teaches applying at least one revenue management program to the revenue management problem data stored in the generic revenue management data model to derive one or more locally optimal solutions (column 5, lines 10-15: optimization modules).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

11. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linda Krisciunas whose telephone number is 571-272-6931. The examiner can normally be reached on Monday through Friday, 6:30 am to 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 571-272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LMK

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March 13, 2006

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